

# PATENT

INSTITUT FRANÇAIS DU PETROLE

## LUMPING AND DELUMPING METHOD FOR DESCRIBING HYDROCARBON-CONTAINING FLUIDS

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### ABSTRACT

- Lumping and delumping method for estimating the properties or the behaviour of liquid and/or vapour hydrocarbon phases from data relative to a reference set consisting of hydrocarbon mixtures in a series of thermodynamic states in a medium.
- Each one of said hydrocarbon mixtures is grouped into at least three constituents (V, I, H), considering that the gas phases resulting from separation under conditions referred to as surface conditions of each mixture do not contain (H) and that the oil phases under the same conditions do not contain (V). The compositions of the separation products comprising, for the gaseous products, at least V and I in variable proportions and, for the liquid products, at least I and H in variable proportions, are determined by material balance. The at least three-constituent composition of each hydrocarbon mixture of the reference set is then determined by combination of the products resulting from the separation thereof in proportion to the amounts of each separation product. Delumping can then be performed to predict, as a function of time and in at least one thermodynamic zone, a detailed composition of a fluid in the medium.
- Application : hydrocarbon reservoir fluids for example.